DESIGN GUIDELINE 312500
EROSION AND SEDIMENTATION CONTROL

Scope

In general, follow the guidelines below when designing and specifying soil erosion and sedimentation control. Unless specifically indicated otherwise, these guidelines are not intended to restrict or replace professional judgment.

Related Sections

Design Guidelines

6.0 DG013639 Tree Preservation
6.0 DG310000 Site Requirements
6.0 DG321000 Walks, Roads and Parking Paving
3.1 Sustainable Design and LEED Requirements
4.4.1 Landscape Materials

Related Documents

LEED Reference Guide for Green Building Design and Construction
Southeast Michigan Council of Governments Low Impact Development Manual
University of Michigan Soil Erosion & Sedimentation Control Procedures

Summary

Soil erosion and sedimentation control (SESC) procedures are activities which are regulated by the State of Michigan on all U-M project sites that implement an earth change activity.

All earth changes of one acre or more or within 500 feet of Waters of the State require a plan that is in compliance with the Soil Erosion and Sedimentation Control Part 91 of Natural Resources and Environmental Protection Act Public Acts 451 of 1994, as amended. All other projects must provide a site plan and a description of the methods being employed to control run off and the resulting sedimentation which would otherwise enter the existing storm water system.

During the design phase of the Project, the U-M Design Manager, with the assistance of the A/E, will submit to U-M Department of Environment, Health and Safety (EHS) a Project Notification Form.

Definition

"Waters of the State" includes the Great Lakes and their connecting waters, lakes, ponds, rivers and streams, which may or may not be serving as a county drain as defined by the drain code; or

any other body of water that has definite banks, a bed and visible evidence of a continued flow or continued occurrence of water and wetlands regulated under Part 303 of Public Acts 451 of 1994.

Design Requirements

The A/E shall prepare the soil erosion and sedimentation control plans and specifications. Implementation of the soil erosion and sedimentation control plan including required maintenance during construction and final removal as directed in the plans is the responsibility of the Contractor.

U-M EHS is designated as an "Authorized Public Agency" and is responsible for administration of Part 91 of Act 451. The proposed plans for soil erosion and sedimentation control must be submitted for review and approval to the U-M EHS and Campus Planning, prior to the beginning of any site work. Coordinate with the Design Manager.

Developing and Implementing the Plan

Governing Principles for All UM Sites Involving an Earth Change Activity

The following principles should be considered before construction, when developing a soil erosion and sedimentation control plan:

- Integrate the overall construction design and activities to fit the existing physical and vegetative features of the site.
- Specify the staging of construction and stabilization activities to minimize the area and duration of disturbance. This can be done by limiting the areas of heavy equipment access and staging/storage of materials; protecting high quality and environmentally sensitive areas; and avoiding excessive and unnecessary clearing and stockpiling of topsoil.
- Protect natural/intermittent streams and swales and maintain as a natural habitat/campus amenity by identifying and mapping natural drainage features and directing surface drainage to the natural features.
- Reduce impervious surfaces by minimizing the dimension or area required for roads, drives, walks and parking.
- Specify control measures that will minimize erosion as a first line of defense, such as: seeding & mulching, preserving vegetative buffers, surface roughening, grade stabilization structures, check dams and controlling wind erosion by covering stockpiles or wetting exposed soils.
- Include perimeter protection controls that will prevent off-site sedimentation. Ex: perimeter barriers (silt fence), vegetative filter strips, anti-tracking pads, storm drain inlet protection, and sediment basins. Sedimentation control should not be used as a substitute for erosion control, but rather in conjunction with erosion control.

- Specify that a sweeper shall be employed to remove sediment tracked onto the pavement at least on a daily basis. Include a requirement that sweepers must be used more frequently, as needed, based on site conditions.
- Require the Contractor to establish an inspection and maintenance schedule.

Include as a minimum the following information for sites one acre or more in size or within 500 feet of Waters of the State:

- A map or maps at a scale of not more than 200 feet = 1 inch. Map shall include a legal description and site location, sketch that includes the proximity of any proposed earth change to lakes, streams or both; predominant land features including lakes, streams and wetlands; and contour intervals or slope information.
- A soils survey or a written description of the soil types of the exposed land area contemplated for the earth change.
- Description and location of physical limits of each proposed earth change.
- Description and location of existing and proposed on-site drainage and dewatering facilities.
- Timing and sequence of each proposed earth change.
- Description and location of all temporary and permanent erosion and sedimentation control measures, including timing on installation and removal of temporary measures.
- Program and schedule for maintaining all control measures.

A design and review checklist containing these required plan items is available

Recommended control measures for all U-M sites involving earth change activity:

The following SESC measures need to be included in all plans. Other measures may also be required based on specific site conditions and projects.

- Provide inlet protection on all adjacent and down gradient storm water inlets, catch basins, and manholes. This may be accomplished using filter fabric, regular or high flow silt sacks, or other control measures.
- Install an entrance anti-tracking pad with a minimum of 50 feet in length. A geotextile filter fabric should be placed under 6 inches of limestone aggregate.
- Install perimeter barriers adjacent to and down gradient of the disturbed area.
- Place stockpiles and other spoil piles away from the drainage system to minimize sediment transport. Keep as few stockpiles as possible during the course of the project. If the stockpile and/or spoil pile must remain onsite overnight, or if the weather conditions indicate the chance for precipitation protect the pile from erosion.
- Provide dust control.
- Provide sweeping to remove any track-out.

- Specify biodegradeable products for erosion control blankets.

Construction sequence for all U-M sites involving earth change activity:

Include a construction sequence in the plans and/or specifications. The following construction sequence is recommended:

- Install all temporary and permanent erosion and sediment control measures in accordance with the approved plan and special permit conditions.
- U-M EHS will inspect all projects at least weekly and after every significant storm events to evaluate the effectiveness of the control measures.
- Per plan and per U-M EHS maintain all temporary and permanent control measures daily and as needed based on the site inspections.
- Complete permanent soil erosion control measures for all slopes, channels, ditches, or any disturbed land area within 5 calendar days after final grading or the final earth change has been completed.
- Remove all temporary control measures after permanent soil erosion control measures are in place and the area is stabilized.
- Notify the Project Manager for a final inspection when the project is completed.